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PATENT
10/622,259
Attorney Docket # 2002P20760US01 (1009-029)

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s)	:	Hausman, Steven Michael
Application #	:	10/622,259
Confirmation #	:	3269
Filed	:	18 July 2003
Application Title	:	Automatic Configuration of a Remote Modem
Art Unit #	:	2182
Latest Examiner	:	Hassan, Aurangzeb

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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DECLARATION UNDER 37 C.F.R. § 1.132

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Sir:

I, Dr. Ronald D. Williams, a citizen of the United States, whose full post office address is

1715 Hearthglow Lane, Charlottesville, VA 22901 declare as follows under penalty of perjury.

Background

1. I hold a Ph.D. degree in Electrical Engineering from the Massachusetts Institute of

   Technology awarded in 1984.

2. I hold a M.S. degree in Electrical Engineering from the University of Virginia

   awarded in 1978.

3. I hold a B.S. degree in Electrical Engineering from the University of Virginia

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awarded in 1977.

4. I am currently an associate professor of Electrical & Computer Engineering at the University of Virginia.

5. Since 1984, I have worked continually in the field of electrical engineering with particular emphasis in embedded computing with applications in control and signal processing.

6. During my career, I have been granted five U.S. patents for my own inventions in the field of embedded computing.

Review

7. I have reviewed Application Serial No. 10/622,259 (hereinafter the present application).

8. I know what one of ordinary skill in the art of the present application would have known on the priority date claimed by the present application (23 December 2002).

9. I have reviewed the USPTO Office Action dated 7 June 2006 (hereinafter the "Office Action") regarding Application Serial No. 10/622,259.

10. I have reviewed U.S. Patent No. 5,649,001 (Thomas).

11. I have reviewed pages 3, 119, and 297 of the book *REAL-TIME SYSTEMS*, Wolfgang A. Halang, Krzystztof M. Sacha, World Scientific, 1993 ("Halang").

12. I have reviewed page 42 of the book *REAL-TIME SYSTEMS Scheduling, Analysis and Verification*, Albert M.K. Cheng, Wiley Interscience, Aug. 12, 2002 ("Cheng").

13. Among the devices with which I was familiar prior to 23 December 2002, the priority

date claimed by the present application, were devices of the type recited in Thomas.

Lexicography

14. Each of claims 1-32 recites a "programmable logic controller" ("PLC"). One having

ordinary skill in the art as of 23 December 2002, the priority date of the present

application, would construe the phrase "programmable logic controller" to mean:

a solid-state, microprocessor-based, hard real-time computing system that

is used, via a network, to automatically monitor the status of field-

connected sensor inputs, and automatically control communicatively-

coupled devices of a controlled industrial system (e.g., actuators,

solenoids, relays, switches, motor starters, speed drives (e.g., variable

frequency drives, silicon-controlled rectifiers, etc.), pilot lights, ignitors,

etc.) according to a user-created set of values and user-created logic and/or

instructions stored in memory. The sensor inputs reflect measurements

and/or status information related to the controlled industrial system. A

PLC provides any of: automated input/output control; switching; counting;

arithmetic operations; complex data manipulation; logic; timing;

sequencing; communication; data file manipulation; control; relay control;

motion control; process control; distributed control; and/or monitoring of

processes, manufacturing equipment, and/or other automation of the

controlled industrial system. In addition to controlling a process, a PLC

might also provide control of information, such as via outputting

information to speakers, printers, monitors, displays, indicators, etc.,

and/or rendering information, such as via reports, notifications, and/or

alarms, etc., such as via a Human-Machine Interface (HMI). Because of

its precise and hard real-time timing and sequencing capabilities, a PLC is

programmed using ladder logic or some form of structured programming

language specified in IEC 61131-3, namely, FBD (Function Block

Diagram), LD (Ladder Diagram), ST (Structured Text language), IL

(Instruction List) and/or SFC (Sequential Function Chart), or potentially

via a general purpose hard-real-time-aware programming language, such

as ADA. Because of its hard real-time timing and sequencing capabilities,

a PLC can replace up to thousands of relays and cam timers. PLC

hardware often has good redundancy and fail-over capabilities.

15. One having ordinary skill in the art as of 23 December 2002, the priority date of the

present application, would have found implicit support in the present application for

this definition at least at paragraph 0002 of the published version of the present

application (U.S. Patent Publication No. 20050261026).

16. One having ordinary skill in the art as of 23 December 2002, the priority date of the

present application, would have found support for the definition of paragraph 14 in

prior art publications. For example, support for the definition of paragraph 14 can be

found in Halang at least at pages 3 and 297.

17. One having ordinary skill in the art as of 23 December 2002, the priority date of the present application, would have construed the phrase "hard real-time", as recited in the definition of paragraph 14 to mean:

> relating to a system (or sub-system) having activities with hard deadlines, and a sequencing goal of always meeting all those hard deadlines. A system operating in non-real-time can suffer a critical failure if time constraints are violated. A classic example of a real-time computing system is an automobile engine electronic valve timing control system, in which an overly delayed or overly advanced control signal might cause engine failure or damage, due to one or more valve-piston collisions. Systems operating in real-time typically utilize instructions embedded in hardware and/or firmware.

18. One having ordinary skill in the art as of 23 December 2002, the priority date of the present application, would have found implicit support in the present application for this definition at least at paragraph 0002 of the published version of the present application (U.S. Patent Publication No. 20050261026).

19. One having ordinary skill in the art as of 23 December 2002, the priority date of the present application, would have found support for the definition of paragraph 17 in prior art publications. For example, support for the definition of paragraph 17 can be found in Halang at least at page 3 and in Cheng at least at page 42.

20. One having ordinary skill in the art as of 23 December 2002, the priority date of the

present application, would have understood the phrase "hard deadline" comprised in

the definition of "real-time" (see paragraph 17, *supra*) to mean:

> a special case where completing an activity within the deadline results in a
>
> system receiving all the utility possible from that activity, and completing
>
> the activity outside of the deadline results in zero utility (i.e., resources
>
> consumed by the activity were wasted, such as when one travels to the
>
> beach to photograph a sunrise on a particular day and arrives after the sun
>
> has already arisen) or some negative value of utility (i.e., the activity was
>
> counter-productive, such as when firefighters enter a burning building to
>
> search for a missing person seconds before the building collapses,
>
> resulting in injury or death to the firefighters). The scheduling criteria for
>
> a hard deadline is to always meet the hard deadline, even if it means
>
> changing the activity to do so.

21. One having ordinary skill in the art as of 23 December 2002, the priority date of the

present application, would have found implicit support in the present application for

this definition at least at paragraph 0002 of the published version of the present

application (U.S. Patent Publication No. 20050261026).

22. One having ordinary skill in the art as of 23 December 2002, the priority date of the

present application, would have found support for the definition of paragraph 20 in

prior art publications. For example, support for the definition of paragraph 20 can be

found in Halang at least at page 3.

Thomas Does Not Teach a Programmable Logic Controller (PLC)

23. Each of pending claims 1-32 of the present application recite a "programmable logic controller."

24. The present Office Action recites:

A. regarding claim 1 at Page 2, "Thomas teaches a system comprising: ... a PLC (communication interface device, element 20, figure 1)";

B. regarding claim 2 at Page 3, "Thomas teaches a device comprising: ... a PLC (communication interface device, element 20, figure 1)";

C. regarding claim 14 at Page 4, "Thomas teaches a method comprising the activities of: ... a PLC (communication interface device, element 20, figure 1)"; and

D. regarding claim 9 at Page 7, "Thomas teaches a device comprising: ... a PLC (communication interface device, element 20, figure 1)".

25. The present Office Action recites, regarding claim 26, "Thomas teaches a method comprising the activities of: providing a programmable cable ... a network comprising the programmable cable, a PLC, and the network communications device (cellular phone system, column 3, lines 8-15)". *See* Page 6.

26. One skilled in the art would find the statements of the Office Action recited in paragraphs 24 and 25 factually incorrect as of 23 December 2002, the priority date
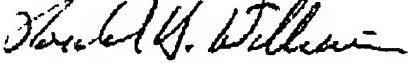
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claimed by the present Application.

27. Instead, one having ordinary skill in the art as of 23 December 2002, the priority date of the present application, would construed the phrase "programmable logic controller" according to the definition of paragraph 14, *supra*.

28. One skilled in the art would have found that Thomas merely teaches a "communications interface device" for a "computer". *See* FIG 1.

29. Thus, one skilled in the art would not have found that Thomas teaches a "programmable logic controller".

I further declare that all statements made herein of my own knowledge are true and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed this 7th day of August, 2006

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Dr. Ronald D. Williams